ENVIRONMENTAL Fact Sheet

Moses Lake Wellfield Contamination Superfund Site

U.S. Environmental Protection Agency, Region 10 *January 2008*

Public Comment starts January 7th and ends March 7th 2008

Open House January 16, 2008, 6:30 pm to 9:00 pm Visit any time during the open house to ask questions and speak with EPA staff about the cleanup.

Public Meeting February 13, 2008, 6:30 pm to 9:00 pm Come to this formal public meeting to hear a presentation on the cleanup, ask questions, and provide comments on the cleanup plan.

PUBLIC MEETINGS LOCATION
Big Bend Community College
7611 Bolling St, Building 1800, Moses Lake

COMMENT ON THE CLEANUP PLAN
Read the Proposed Plan and its supporting documents at Big Bend Community College library or on our webpage:
http://www.epa.gov/r10earth/

Mail your written comments on the Proposed Plan by March 7, 2008:
Dennis Faulk
U.S. Environmental Protection Agency
309 Bradley Blvd., Suite 115
Richland, Washington 99352
or send your comments by e-mail to
faulk.dennis@epa.gov

You can also comment at the public meeting on February 13, 2008.

For More Information
Contact Suzanne Skadowski
EPA Community Involvement Coordinator
at 206-553-6689 or e-mail
skadowski.suzanne@epa.gov

Si desea más información o si tiene preguntas sobre el Sitio Moses Lake, por favor comuníquese con:
Jonathan Freedman, EPA, 206-553-0266,
freedman.jonathan@epa.gov

Cleanup Plan Proposed for Moses Lake Superfund Site

The Superfund site includes the former Larson Air Force Base, the Grant County Airport, and areas south of the airport (see map inside). The groundwater and soils at the site were contaminated by operations of the Larson Air Force Base and industrial activities associated with the aircraft industry. In 1988, trichloroethylene (TCE) contamination was found in three of the City of Moses Lake drinking water supply wells on the base. TCE contamination was also discovered in the Skyline Water System wells located south of the base.

Since that time, EPA and the U.S. Army Corps of Engineers (Corps) have been investigating the contamination and cleanup options at Moses Lake. Between 1989 and 1993 the City fixed the three contaminated wells on the former base by deepening the wells. In 2003, the Corps constructed a replacement water supply well for the Skyline Water System. Continued testing has shown that the City and Skyline wells continue to provide reliable, clean drinking water to the community. The Corps and EPA continue to test a representative set of wells (up to 80) at the site. Based on this sampling, five homes have had whole-house filters installed at their wells to remove TCE from the water.

Currently, about 1000 acres of groundwater are contaminated with TCE in an area starting beneath the base and extending about four miles towards the lake. The TCE contamination is found in three areas or “plumes” in the groundwater: the Main plume, South plume, and Northeast plume. Twelve soil areas are also potentially contaminated with TCE and other pollutants including petroleum, arsenic, lead, and mercury. TCE is an industrial solvent that was commonly used at this site for stripping paint from airplanes, washing airplane parts, and cleaning missile components.

EPA proposes to clean up the contaminated groundwater by pumping out the most highly contaminated water and treating it to remove TCE. To clean up the contaminated soil areas, EPA proposes to remove all soil and materials that are contaminated above safe levels. The goal of this cleanup is to protect the public from contamination and to restore the groundwater to its highest beneficial use as a drinking water source. This cleanup plan will require local land use restrictions such as changes to local ordinances, county zoning, and property easements to protect the public from contaminated groundwater and soils. The proposed cleanup is expected to cost about $31 million.

The Proposed Plan gives background information about the Moses Lake site, describes the cleanup options EPA considered, and explains EPA's recommended cleanup actions. This fact sheet has been written to give you a brief summary of the main cleanup options. EPA will choose a final cleanup plan for the site after careful review and consideration of information provided by the public during the comment period.

Health Risks

At the Moses Lake Superfund site, the greatest health risk to people would be from coming into contact with TCE-contaminated groundwater and soils contaminated with metals, petroleum, TCE and other chemicals. The safe level for TCE in drinking water is set at 5 parts per billion (ppb). A part per billion is a small amount, similar to one drop in a railroad tanker car.

The groundwater plumes at this site contain TCE concentrations above 5 ppb and some areas of the plumes contain TCE above 80 ppb. EPA considers TCE highly likely to cause cancer in people. Some people who drink water containing TCE in excess of 5 ppb over many years could experience problems with their liver and may have an increased risk of getting cancer.

CLEANUP OPTIONS

EPA considered four options for cleaning up the contaminated groundwater and three options for cleaning up contaminated soils at the Moses Lake site. Groundwater is extremely difficult to clean up and it takes a very long time. Therefore, an effective cleanup must include a way to protect the public in the short term, while long-term work is under way. The options described here all include a combination of actions to address these challenges.

The options to clean up the soil contamination sites are meant to prevent people from coming into direct contact with contaminants and to prevent further contamination of the groundwater. The four groundwater cleanup options and three soil cleanup options were evaluated against nine criteria required by the Superfund law and are summarized below.
(See next page for criteria and comparison of options.)

Groundwater Cleanup

Option 1 – No Action

EPA must have a "no-action" option to use for comparison with other cleanup options. Since no action would be taken, this option would increase the potential that people could come into contact with the contamination. Under the No-Action alternative, institutional (land-use) controls are not implemented, except for controls required to operate the airport in compliance with federal regulations. No cleanup or monitoring of groundwater contamination would occur with this option.
Cost — $0

Option 2 – Institutional Controls and Long-Term Monitoring

This option includes a variety of actions so that the public is not exposed to levels of TCE above the safety level of 5 ppb. The actions include institutional (land-use) controls, alternate water supplies such as new wells or well filters, and long-term groundwater monitoring with existing monitoring wells and new monitoring wells in important aquifer locations.
Cost — $7.9 million

Option 3 – Groundwater Extraction and Treatment, Institutional Controls and Long-Term Monitoring *(EPA's recommended option)*

The groundwater would be pumped from the areas of highest TCE contamination in the Main and South TCE plumes and then treated (known as "pump and treat") before the pumped water is re-injected. The remaining low levels of groundwater contamination would be allowed to gradually dissipate naturally over a period of years. Groundwater extraction wells would be installed to pump the contaminated groundwater to the surface and into a holding tank for treatment. Activated charcoal filters and/or air stripping are frequently used to remove TCE from extracted groundwater. It is estimated that about six wells would be installed in each plume to provide adequate pumping capacity. A similar number of re-injection wells would be required to return the treated water to the aquifer.
Cost — $13 million

Back-up Options that may be combined with Option 3:

If we find an area of high TCE contamination in the deeper aquifers located beneath the Main and South plumes during long-term monitoring, we would install new pumping wells in the deeper aquifer to treat the TCE contamination. **Cost — $4 million**

Because the Main groundwater plume is very close to the Northeast groundwater plume, we expect that pumping and treating the Main plume will also capture the contaminated groundwater of the Northeast plume. If this plume is not captured by the Main pump and treat system and long-term monitoring shows a need for action, we will add more pumping wells to treat the Northeast plume. **Cost — $2 million**

Option 4 – Groundwater Injection Treatment, Institutional Controls and Long-Term Monitoring

One or more chemicals would be injected into the contaminated groundwater areas to cause a chemical

reaction to break down the TCE. Injection wells would be drilled to deliver the chemicals to the contaminated areas.
Cost — $14 million

Soil Cleanup

Option 1 – No Further Action
Several areas of soil contamination have already been cleaned up or controlled in previous years. This option would include no additional soil cleanup or monitoring. Since no further action would be taken, this option would increase the likelihood that people could come into contact with the remaining soil contamination.
Cost — $0

Option 2 – Institutional Controls and Long-Term Monitoring
This option includes a variety of actions so that the public is not exposed to levels of TCE or other pollutants above safety levels. The actions include institutional (land-use) controls and long-term soil testing and investigation to see if any of the sites could be a continuing source of TCE to the groundwater.
Cost — $758,000

Option 3 – Contaminated Soils Removal, Institutional Controls, and Long-Term Monitoring
(EPA's recommended option)
In areas where contamination is found above safety levels, the soils and materials would be excavated and disposed off-site. This option also includes institutional (land-use) controls and long-term soil testing and investigation to see if any of the sites could be a continuing source of TCE to the groundwater.
Cost — $18,600,000

What are Institutional Controls?
Institutional (land use) controls to protect the public from exposure to contamination from the site. Institutional Controls include local laws and permits such as county zoning and building permits, property easements and covenants, and deed notices. Institutional Controls at the Moses Lake site are needed to prevent public exposure to TCE and other contaminants during future property development or whenever work is done in the area.

Institutional controls would be implemented within an "Institutional Controls Boundary." Institutional controls at Moses Lake may include a city or county ordinance for new wells inside the Institutional Controls Boundary requiring TCE testing and mandatory filter installation for wells contaminated near or above the safety level.

How do the options compare?
EPA evaluated the various cleanup options against seven of the nine criteria required by the Superfund law and selected its recommended option. State and community acceptance will be evaluated after EPA receives public comments. More information about the evaluation is in the feasibility study report.

1. Overall protection of human health and the environment addresses whether an option adequately protects human health and the environment. This criterion can be met by reducing or eliminating contaminants or by reducing people's exposure to the contamination.

2. Compliance with applicable or relevant and appropriate requirements or ARARs ensures that each cleanup option complies with federal, state, and local laws and regulations.

3. Long-term effectiveness and permanence evaluates how well a cleanup option will work in the long term, including how safely remaining contaminants can be managed.

4. Reduction of toxicity, mobility, or volume through treatment addresses how well the cleanup option reduces the harmful effects, movement, and amount of contaminants.

5. Short-term effectiveness compares how quickly the cleanup can be completed and the health risks posed to cleanup workers and nearby residents while the option is under construction.

6. Implementability assesses how difficult the cleanup option will be to construct and operate, and whether technology, materials, and services are readily available.

7. Cost compares the expense of each option over time in a financial calculation called present worth. Cost includes capital expenditures such as buildings, machines, and wells, plus operation and maintenance costs. Present worth cost is the total cost of an option over time in terms of today's dollar value. A cleanup is considered cost effective if its costs are in proportion to its overall effectiveness.

8. State acceptance is whether the state environmental agency, in this case Washington Department of Ecology, agrees with EPA's recommended option. EPA evaluates state acceptance after it receives public comments on its preferred option.

9. Community acceptance evaluates how well the community near the site accepts the option. EPA will evaluate community acceptance after the public comment period.

Comparing the groundwater cleanup options against the Superfund criteria

Groundwater Cleanup Options	Protects Human Health & Environment	Complies with Regulations	Effective Long-term	Reduce Toxicity, Mobility, Volume	Effective Short-term	Can be Implemented	Cost
1. No Action	No	No	No	No	No	Yes	$0
2. Institutional Controls, Long-term Monitoring	No	No	No	No	Possibly	Unknown	$7.9 million
3. Pump and Treat Groundwater, Institutional Controls, Long-term Monitoring	Yes	Yes	Yes	Yes	Yes	Yes	$13 -19 million*
4. Injection Source Treatment, Institutional Controls, Long-term Monitoring	Yes	Yes	Yes	Yes	Yes	Unknown	$14 million

*Based on additional monitoring of the groundwater, the deeper aquifers and the Northeast plume may also require pumping and treatment.

Comparing the soil cleanup options against the Superfund criteria

Soil Cleanup Options	Protects Human Health & Environment	Complies with Regulations	Effective Long-Term	Reduce Toxicity Mobility Volume	Effective Short-term	Can be Implemented	Cost
1. No Action	No	No	No	No	No	Yes	$0
2. Institutional Controls & Long-term Monitoring	No	No	No	No	Yes	Yes	$758,000
3. Soil testing, Contaminated Soil Removal Above Safety Levels, Institutional Controls, Long-term Monitoring	Yes	Yes	Yes	Yes	Yes	Yes	$18.6 million

NEXT STEPS

EPA will evaluate public reaction to the recommended cleanup option during the comment period before deciding on a final cleanup plan. Based on new information or public comments, EPA may change the recommended option or choose another option. EPA encourages you to review and comment on the Proposed Plan.

EPA will respond in writing to public comments in a "responsiveness summary," which will be attached to the document detailing the final cleanup plan called the Record of Decision. The final cleanup plan will be announced in a *Columbia Basin Herald* newspaper notice and presented in an EPA document called a Record of Decision. The Record of Decision will be available at the Big Bend Community College library and on EPA's web site.

FOR MORE INFORMATION

Read the Proposed Plan and key site documents at these locations:

Big Bend Community College Library
7611 Bolling St, Building 1800
Moses Lake, WA
509-793-2350

EPA's Webpage
http://www.epa.gov/r10earth/

If you have questions or concerns about the cleanup, contact these EPA staff:

For questions about the public meetings and comment period, or to get a copy of the Proposed Plan, contact EPA Community Involvement Coordinator **Suzanne Skadowski** at 206-553-6689, toll free at 800-424-4372, or e-mail *skadowski.suzanne@epa.gov*

For technical questions about the contamination and the proposed cleanup, contact EPA Project Manager **Dennis Faulk** at 509-376-8631 or e-mail *faulk.dennis@epa.gov*

For questions about the groundwater contamination, contact EPA Hydrogeologist **Marcia Knadle** at 206-553-1641 or e-mail *knadle.marcia@epa.gov*

For questions about health risks from the contamination, contact EPA Risk Assessor **Julius Nwosu** at 206-553-7121 or e-mail *nwosu.julius@epa.gov*

PARA MAS INFORMACIÓN Si desea hablar con alguien que habla español, llame a Jonathan Freedman, EPA, 800-424-4372.

U. S. Environmental Protection Agency
1200 Sixth Avenue, Suite 900, ETPA-081
Seattle, Washington 98101-3140

Moses Lake Wellfield Contamination Superfund Site
Moses Lake WA
January 2008

Alternative formats are available. For reasonable accommodation, please call Suzanne Skadowski at 206-553-6689. TTY users, please call the Federal Relay Service at 800-877-8339.

<> Working with you for a better environment. <>